We claim:

1. A process for the production of lower aliphatic esters said process comprising reacting a lower olefin with a saturated lower aliphatic mono-carboxylic acid in the vapour phase in the presence of a heteropolyacid catalyst characterised in that the reaction is carried out in a plurality of reactors set up in series such that the gases exiting from a first reactor are fed as the feed gas to a second reactor and those exiting from the second reactor are fed as the feed gas to a third reactor and so on for the subsequent reactors, and an aliquot of the reactant monocarboxylic acid is introduced into the feed gas to the second and subsequent reactors so as to maintain the olefin to monocarboxylic acid ratio in the feed gas to each of the second and subsequent reactors within a pre-determined range.

2. A process according to Claim 1 wherein the plurality of reactors are set up in series in such a way that each of the reactors is disposed in an axial mode with the feed and product gases traversing a substantially axial path within each reactor from entering the top of the reactor until the product gases leave each reactor from the base thereof, the catalyst being positioned somewhere midway between the point of entry of the feed gas and the point of exit of the product gases.

3. A process according to Claim 1 wherein the plurality of reactors is set-up in a series of radial flow reactors whereby the feed gases enter at the top of a reactor, pass down the middle thereof and then outwards radially over the catalyst in said reactor.

4. A process according to Claim 3 wherein each radial flow reactor in the series is of a substantially tubular shape which in a planar view has the appearance of a set of three substantially concentric tubes and wherein the

feed gases enter from the top into the inner most tube and flow substantially radially outward into a middle annular tube housing the catalyst bed and then, after the addition reaction has taken place over the catalyst bed to generate a gaseous stream of product gases comprising ethyl acetate and the unreacted feed gases, said gaseous stream emerging from the annulus comprising the catalyst bed flowing further radially into the outermost tube of said concentric tubular reactor to be fed as feed gas into a second such radial flow reactor and so on.

5. A process according to Claim 3 wherein the reactant acid is introduced into the gaseous streams emergent from each of (a) the first reactor to maintain the desired reactant concentrations in said gaseous stream so as to enable said stream to be used as the feed gas for the second and (b) the second reactor which is fed as the feed gas to the third reactor and so on to each of the subsequent reactors along in the series.

6. A process according to Claim 1 wherein the olefin reactant used is ethylene, propylene or mixtures thereof.

7. A process according to Claim 1 wherein the saturated, lower aliphatic mono-carboxylic acid reactant is a C1-C4 carboxylic acid.

8. A process according to Claim 1 wherein the mole ratio of olefin to the lower monocarboxylic acid in the reactant gases fed to the first reactor is in the range from 1:1 to 18 : 1.

9. A process according to Claim 1 wherein the mole ratio of olefin to the lower monocarboxylic acid in the reactant gases fed to the first reactor is in the range from 10:1 to 14:1.

10. A process according to Claim 1 wherein in the case of the manufacture of ethyl acetate from ethylene and acetic acid, the mole ratios of ethylene to acetic acid in the reactant gases fed to the first reactor is in the range from 1:1 to 18:1 and that of the feed gas to the second and subsequent reactors is maintained in the range from 10:1 to 16:1 by adding, as necessary, further aliquots of acetic acid to the feed gas to the second and subsequent reactors.

11. A process according to Claim 1 wherein the process is carried out in one long reactor which has a plurality of catalyst beds set up in series and the acid is injected into the exit gases from the first bed to maintain the range of olefin to monocarboxylic acid within the predetermined range in the second and subsequent beds, said long reactor thereby notionally comprises a

plurality of individual reactors set up in series.

~~14~~. A process according to Claim 1 wherein the process comprises at least four reactors set up in series.

~~15~~. A process according to Claim 1 wherein the cooling between each of the reactors is achieved, where necessary, wholly or partially by the injection of the reactant acid, water or mixtures thereof into the feed gas to the second and subsequent reactors.

~~16~~. A process according to Claim 1 wherein the heteropolyacid catalyst is silicotungstic acid used as a free acid or as a partial acid salt thereof supported on a siliceous support derived from a synthetic silica.

~~17~~. A process according to Claim ~~16~~ wherein the supported heteropolyacid catalyst is suitably used as a fixed bed in each reactor.

~~18~~. A process according to Claim 1 wherein the vapours of the reactant olefins and acids are passed over the catalyst at a GHSV in the range from 100 to 5000 per hour.

~~19~~. A process according to Claim 1 wherein the addition reaction is carried out at a temperature in the range from 150-200°C within which range the entry temperature of the reactant gases is from 160-180°C and the temperature of the exit gases from each reactor is from 170-200°C.

~~20~~. A process according to Claim 1 wherein the reaction pressure is at least 400 KPa depending upon the relative mole ratios of olefin to acid reactant and the amount of water used.